



About The Earth Partners

The Earth Partners (TEP) is a partnership of scientists, land managers, investment professionals, whose founding partner companies include:



Applied Ecological Services – a broad-based ecological consulting, contracting, and restoration firm that has been a world leader since 1975, with specific expertise in improving soil health and increasing soil carbon levels in grassland, rangeland, and wetland ecosystems



Brinkman & Associates Reforestation – a leading forest ecosystem restoration company with global operations in 5 countries, established in 1970, with specific expertise in developing carbon measurement methodologies across a range of ecosystems, with a particular focus on forest carbon projects

The TEP method

The Earth Partners has developed a methodology that allows for the cost-effective measurement and monitoring of carbon stocks (and greenhouse gas fluxes) in agricultural acreage, rangelands, conservation areas and ecosystem restoration projects primarily in terrestrial and wetland systems (including peatlands). The method can measure and track all carbon stocks and pools, including above-ground, below-ground, soil, litter, deadwood, etc. The method has been peer-reviewed by many leading soil scientists. It has gone through a pre-validation with the Voluntary Carbon Standard (VCS) and has been tested in a wide range of ecosystems throughout North America, Central and South America, New Zealand and several locations in Europe.

This method allows landowners to validate their historical carbon sequestration and emissions. And it allows them to measure, document, verify and monetize future accounting representations, including credits. This method can provide statistically defensible and verifiable, high-quality carbon offset credits suitable for sale in the voluntary carbon market and potential emerging compliance markets. Also, this method can facilitate performance-based payments stemming from low carbon practices under governmental programs (e.g., U.S. Farm Bill), or corporate payments stemming from a company's carbon-bundled supply chain product offering. TEP is working with USDA, policy makers, NGOs, and academics to ensure that our method is incorporated into future governmental programs.

Advantages of the TEP method

Existing protocols allow landowners to create carbon revenue based on default carbon accrual rates. These are derived from scientific literature, sample plots, national models, or through some level of consensus among experts. This approach limits the amount of projects eligible for crediting to land management practices and geographies where consensus has been achieved. Often, landowners must subscribe to a single land management strategy. Landowners who fail to adhere lose eligibility.

The TEP method allows landowners and project developers to claim carbon accruals directly from their management practice changes and restoration efforts. As a result, landowners are not restricted by assumptions or baselines. This provides farmers, landowners, and land managers with increased flexibility and incentives to implement their preferred management practices. It also gives them freedom to adapt their land management practices over time to new technologies and changing circumstances (e.g., climate change, product differentiation, market demand).



When utilizing the TEP method, discussions regarding the validity or conservatism of the carbon credits are less relevant because carbon accruals are backed up by sampling, performance measurement and statistical certainty.

Differences between the TEP method and default-based methods

	<u>TEP method</u>	<u>Default-based method (e.g., CCX)</u>
Description	<ul style="list-style-type: none"> The TEP method employs sampling to determine soil carbon accrual over time 	<ul style="list-style-type: none"> Default-based methods approximate average soil carbon accruals under specific management practices, regions and climate conditions
Crediting basis	<ul style="list-style-type: none"> Project owner gets actual measured carbon accruals, which on high potential project areas can be multiples of average/default levels 	<ul style="list-style-type: none"> Accruals are derived from scientific literature, sample plots, and national models and discounted by 20% to assure conservatism
Buffer comparison	<ul style="list-style-type: none"> Using VCS as an example, low risk Agricultural Land Management (ALM) projects have a buffer discount of 10-15% 	<ul style="list-style-type: none"> CCX protocol has a 20% buffer on all projects
Practice flexibility	<ul style="list-style-type: none"> No restrictions on the landowner regarding applied management (i.e., gives farmers flexibility in their management decisions) 	<ul style="list-style-type: none"> Requires landowners to subscribe to a single management strategy, and landowners not adhering loose eligibility
Project and land eligibility	<ul style="list-style-type: none"> Any land type and practice change can be eligible for credits, allowing for the possibility of scale 	<ul style="list-style-type: none"> CCX protocol limits the amount of projects eligible for crediting to practices and geographies that have been researched extensively



Implementation costs

Our on-the-ground work has proven the TEP method to be practical and cost-effective. Enhanced landscape stratification technologies have reduced field sampling costs. Using existing aerial mapping, TEP can identify and map landscape areas of similar slope, aspect, existing and historic vegetation, soils, hydrography, and land use history. The mapped zones of similarity then become the basis for the design of random-stratified field sampling and monitoring of soil carbon and other greenhouse gas (GHG) emission variables. The result is cost-effective implementation, especially at large landscape scales. But even on smaller projects with higher fixed costs per-acre, higher carbon payments significantly exceed higher per-acre costs.

Example of our work

TEP and its partner organizations, Applied Ecological Services and the Sustainable Food Laboratory, received a Packard Foundation grant in 2008 to evaluate the literature and conduct pre-sampling of soil carbon levels in farm fields across the Pacific Northwest and in California's central valley vegetable production area. Other projects have developed a 30-year time-series soil carbon accrual dataset that allows the comparison of carbon levels in no-till fields and fields under conventional soil tillage.

These were sampled to a 1-meter depth, with soil carbon compared to reference plots in nearby nature preserves and conservation areas, to the same sampled depth. This analysis was then used to develop soil carbon accrual models and business cost/revenue models for the sampled farms, which were chosen to be representative of the region.

Still other projects throughout the western U.S., with ranchers in CA, OR, WA, NM, NE, UT and elsewhere, have resulted in the formation of a partnerships to create large-scale carbon projects in each region.

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